I add that the genus *Aphelops* differs from *Aceratherium* in the presence of but three toes on the anterior foot, and from *Rhinoceros* in the absence of horn.—*E. D. Cope.*

THE LOWER JAW OF LOXOLOPHODON.—Messrs. Speir and Osborn contributed to the April number of the *American Journal of Science and Art*, a very interesting account of the mandible of *Loxolophodon cornutus*, which has been hitherto unknown. It presents characters as curious as those of the cranium. The incisors and canines are similar, and have remarkable bilobate crowns, and there is a slight expansion of the lower margin of the ramus to represent the wide phlange of *Uintatherium*. The authors of the paper have not consulted the literature as carefully as they might have done, and have thus been led into error in several points. They think that the mandible of *Loxolophodon* had been already described by me, and that erroneously; whereas the description to which they refer, is that of another species, probably of another genus, found in a different Bridger basin. It was not identified, and was described only as "resembling that of *Uintatherium*." They confirm my description of the furcate character of the premaxillary bones, while seeming to disapprove of it. They also appear to suppose that the question of the possession of a proboscis is identical with the question of Proboscidian affinity, which are really dissimilar propositions.—*E. D. Cope.*

GEOGRAPHY AND TRAVELS.[1]

AFRICAN EXPLORATION.—Dr. Rohlfs left Tripolis about Christmas. Letters dated January 27, 1879, at Sokna, some 250 miles south of Tripolis, have been received, from him, at Berlin. They include a valuable zoölogical report by Dr. Stöcker and a number of astronomical observations. Sultan Ali of Wadai, who treated Dr. Nachtigal so hospitably, is dead, but his brother, Jousouf, who succeeded him, is said to be equally well disposed towards foreigners.

Capt. Roudaire reports favorably on the experimental borings made by him along the neck of land separating the gulf of Gabes from the Saharan depression. Nothing but sand and soft soil were encountered down to a depth of one hundred feet. There are no rocks, and M. de Lesseps expresses himself satisfied that the construction of a canal will meet with no difficulties. The scheme, however, of converting this portion of the Southern Sahara into an inland sea is severely criticized; it is said that, if successful, it would destroy the date-culture, and owing to the prevalence of northerly winds would not exercise any favorable influence upon the climate of Algeria.

Mr. Mackenzie, the African traveler, sailed from England recently for Cape Juby, on the north-west coast of Africa, in a

[1] Edited by ELLIS H. YARNALL, Philadelphia.

specially chartered steamer, for the purpose of opening that region to commerce.

M. Paul Soleillet, according to the last intelligence received in Paris, had reached Sego and was proceeding onwards.

One of the most important explorations recently accomplished is that of the river Ogowé, the largest river in the French colony of the Gaboon. This expedition, commanded by M. Savorgnan de Brazza assisted by Dr. Ballay, has now returned after three years of hardship and danger, having had to struggle against the ill-will and cupidity, and eventually the open hostility, of the natives. The Ogowé may be divided into three almost equal parts, the upper, middle and lower. The middle portion follows the equator as nearly as possible, and the other two incline about a degree and a half southwards, the one towards the source and the other towards the mouth. MM. de Brazza and Ballay started from Lambaréné, the extreme limit of the European factories, in August, 1875. They halted first at Lopé, a large village on the middle course of the river, whence M. de Brazza went by land into the country of the Fans, who were friendly, and from thence to Doumé, much higher up the river, where he was rejoined by Dr. Ballay. Above the Poubara falls the Ogowé becomes an insignificant stream. Having ascertained that it did not communicate with the great lakes in the interior, they left the basin of the stream, which evidently has its source from a high plateau not very distant from the coast. They now suffered much from want of food and water, but continuing on reached the N'yambo, a stream flowing eastward, and which brought them to the Alima, a large river not indicated upon any map. It was here 165 yards broad and sixteen feet deep, and is thought to be one of the affluents of the Congo. They followed it for some distance partly on foot, partly in canoes, but owing to the attacks of the savages were finally obliged to abandon the stream, which continued to run eastward. The country was here a vast swamp, the houses of the natives being built on piles. Turning towards the north the tribes proved less inhospitable, but provisions were procured with difficulty, and they were frequently from twenty-four to thirty hours without food. After crossing several streams, all of which flowed eastward, the expedition was obliged to separate; M. de Brazza pursuing his journey beyond the equatorial line, while Dr. Ballay awaited him at the falls of Poubara. The rainy season drawing near, the former rejoined his companions, and descending the Ogowé the expedition arrived at Gaboon on November 30, 1878. During the last five months they had to march barefooted. About 800 miles of ground were covered, nearly all of which was previously unknown. M. de Brazza contemplates renewing his attempt during this year and exploring some of the other affluents of the Ogowé, which may prove of greater importance than the branch now made known. A cor-

respondent of the *Athenæum* (February 22, 1879) says: "The experience of M. de Brazza confirms Mr. Stanley's description of the warlike character of the tribes on and near the Congo, and we may fairly infer that no exploration of these regions can be successfully carried out except by a strong party, and by the occasional resort to force, in order to overcome the opposition of the hostile tribes." MM. de Brazza and Ballay are now in Paris, where they have received many honors, including the bestowal of the great gold medal of the Paris Geographical Society.

Herr von Koppenfels has recently been exploring the country inland from Gerisco bay, in West Africa, a little to the north of the Gaboon. He ascended the river Muni as far as the rapids of the Tampuni, and traveled thence by land, apparently following Du Chaillu's track. In the Crystal mountains he fell in with tribes absolutely unknown to Europeans. They are weak, poor and very inoffensive. Their country abounds in elephants and gorillas whose depredations are much dreaded, as the people appear to have no means of protecting plantations or gardens from their incursions. The tribes dwelling further inland are described as peaceable.

Herr Schütt, who has been sent by the German African Society to explore the interior of West Africa, from Loanda, has been attacked and robbed by the Bengala tribe on the Quango river, and been obliged to turn back to M'Banza Muango, on the river Lui (9° S. lat.). He has prepared a tolerably correct map of the entire plateau between 8° and 10° S. lat. with all the numerous streams that flow from it. He was determined to continue his work, and was, when last heard from (August, 1878) preparing to cross the Quango and open up the direct way to the north.

Major Serpa Pinto has arrived at Pretoria, in the Transvaal, with eight followers, the remnant of four hundred. In the January number of the NATURALIST we mentioned his intended departure from Bihé for the Upper Zambesi on the 18th of May, 1878. He telegraphs to the Portuguese government, "In concluding my journey across Africa, I struggled with hunger, thirst, the natives, floods and drought. I have saved all my papers—twenty geographical charts, many topographical maps, meteorological studies, drawings and a diary of the complete exploration of the Upper Zambesi, with its seventy-two cataracts." He says, according to the *Nature*, "he has discovered the secret of the Cubango, by which he seems to mean the river which under various names was for a time taken by some to be the upper course of the Congo." Major Pinto's companions, Capello and Ivens, who separated from their leader at Bihé, have not as yet been heard from.

The (English) Baptist Missionary Society have, according to the Academy, decided to despatch an expedition under Mr. T. I. Comber, with instructions to make San Salvador, to the south of Yellala falls, the base of operations, and if possible to occupy

Makouta, to the north-east of that place; they are further to leave no effort untried to reach the Upper Congo river near Stanley Pool(about 4° S. lat. 17° E. long). It is contemplated to send a small steamer in sections for the navigation of the Upper Congo. San Salvador district is much more healthy than the coast, and the country is very productive. The people are described as very quiet.

MICROSCOPY.[1]

ON A STANDARD FOR MICROMETRY.[2]—When the subject of a standard for micrometry came before this society at the suggestion of the late National Microscopical Congress, we found ourselves unable to vote satisfactorily upon it; not for want of any definite desire in respect to it, but because it seemed evident that a mere affirmative or negative answer to the proposals of the congress would not accomplish any desired result. For a few individuals or societies to commit themselves positively either for or against the proposals might even render valuable progress on this important subject more difficult. The differences of opinion were so strong and so reasonable, and the other interests involved were so diverse and wide spread, as to call for a thorough conference before adopting any definite policy. We therefore proposed a national committee to investigate the subject, confer with persons wishing to be heard or likely to give valuable information in respect to it, and place the data thus obtained at the service of all parties interested. As yet we have heard of no opposition to the appointment of the proposed committee. The whole spirit of the world's science at the present day calls for the highest possible precision in determining questions of the form and size of objects. It is well known that such precision has not yet been attained in micrometry; and it is difficult to believe that any one who desires to give a respectful hearing to the wishes of his fellow students, could seriously object to submitting this manifestly important subject to the consideration of a suitable committee. Whether in favor of one action, or of another, or of none, we should certainly be willing that all opinions and preferences be heard before making our final decision.

As to the course which should be adopted by the committee, or recommended to the country, there is, however, the greatest room for reasonable differences of opinion. And the same reasons which make a committee necessary, should require us to submit our views with candor and plainness, but without demanding or expecting that they shall be adopted as a whole. A fair hearing and a respectful consideration is all that can be asked by any one in such a case. And for the same reasons, any action

[1] This department is edited by Dr. R. H. WARD, Troy, N. Y.

[2] Remarks at the Microscopical Section of the Troy Scientific Association, December 2, 1878, by R. H. Ward, M.D.